MATERIAL SAFETY DATA SHEET (MSDS)
LIQUEFIED PETROLEUM GAS AND PROPANE

Please ensure that this MSDS is received by the appropriate person

DATE: March 2017 Version 3

Ref. No.: MS111

1 PRODUCT AND COMPANY IDENTIFICATION

PRODUCT IDENTIFICATION

Product Name:	HANDIGAS (LIQUEFIED PETROLEUM GAS)
Chemical Formula:	C3H8 PLUS C4 H10 PLUS C3 H6
Trade name:	Handigas
Colour Coding:	Plascon Dark Admiralty Grey (SABS 1091 – G.12) body, with a Handigas decal affixed to the cylinder. All cylinders fitted with an internal eductor tube for liquid withdrawal shall be clearly marked with two Yellow (B.49) stripes painted diametrically opposite each other along the length of the cylinder.
Valve:	Brass 5/8 inch BSP left hand female, either single or two-way outlet.
Company Identification:	African Oxygen Limited 23 Webber Street Johannesburg, 2001 Tel. No: (011) 490-0400 Fax. No: (011) 490-0506

EMERGENCY NUMBER 0860 020202 or +27(0) 11 821 3000 (24 hours)

2 COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	Butane / Propane / Propylene
Chemical Family	Aliphatic Hydrocarbon
CAS NO.	BUTANE 106-97-8 UN NO.1075
	Propane 74-98-6 UN No. 1978
	Propylene 115-07-01 UN No. 1077
UN No.	1075
ERG No.	115
Hazchem Warning	2A Flammable gas

3 HAZARDS IDENTIFICATION

Vapourised liquefied petroleum gas is highly flammable and can form explosive mixtures with air. The vapourised liquid does not support life. It can act as a simple asphyxiant by diluting the concentration of oxygen in the air below the levels necessary to support life. It can act as a simple asphyxiant.

Adverse Health effects

The liquefied petroleum gases are non-toxic. Prolonged inhalation of high concentrations has an anaesthetic effect

Chemical Hazards

Propane and butane (known as extensively in commercial and popular terms as Lpgas or LPG) have an extremely wide range of domestic, industrial, commercial, agricultural and internal combustion engine uses. It is estimated that two gases, un-mixed and in mixtures, have several thousand industrial applications and many more in other fields. Their very broad application stems from their occurrences as hydrocarbons between natural gas and natural gasoline, and from their corresponding properties. As a result of their wide application, misuse could result in serious chemical hazards.

Biological Hazards.

Contact with the liquid phase of liquefied petroleum gases with the skin can result in frostbite.

Vapour Inhalation

As the vapourised liquid act as a simple asphyxiant death may result from errors in judgement, confusion, or loss of consciousness which prevents self-rescue. At low oxygen concentrations, unconsciousness and death may occur in seconds without warning.

Eye Contact	The liquid can cause severe burn-like injuries.
Skin Contact	Contact with the liquid phase can cause severe burn-like injuries.
Ingestion	No known effect

Hazard Category 1

Danger
Extremely flammable gas

4 FIRST AID MEASURES

Prompt medical attention is mandatory in all cases of overexposure to vapourised liquefied petroleum gas. Rescue personnel should be equipped with self-contained breathing apparatus. In the case of frostbite from contact with the liquid phase, place the frost bitten part in warm water, about 40 -42 °C. If warm water is not available. Or is impractical to use, wrap the affected part gently in blankets. Encourage the patient to exercise the affected part whilst it is being warmend. Do not remove clothing whilst frosted. Conscious persons should be assisted to an uncontaminated area and inhale fresh air. Quick removal from the contaminated area is most important. Unconscious persons should be removed to an uncontaminated area, and given mouth-to-mouth resuscitation and supplemental oxygen.

Eye contact	**(with liquid phase)**
Eye contact	Immediately flush with large quantities Of tepid water, or with sterile saline solution. Seek medical attention
Skin Contact	See above for handling of frostbite
Ingestion	No known effect

5 FIRE FIGHTING MEASURES

Extinguish media

Do not extinguish fire unless the leakage can be stopped. DO NOT USE WATER JET. Use dry chemical, CO2 or foam.

Specific Hazards

The rupturing of cylinders or bulk containers due to excessive exposure to fire could result in a BLEVE (Boiling Liquid expanding Vapour Explosion), with disastrous effects. As the flammability limits in the air for the main constituents of liquefied petroleum gas vary between approximately 2 and 11% by vol, extreme care must be taken when handling leaks.

Emergency actions

If possible shut off the source of spillage. Evacuate area. Post notices "No Naked lights – No Smoking". Prevent liquid or vapour from entering sewers, basements and workpits. Keep cylinders or bulk vessels cool by spraying with water if exposed to fire. If tanker has overturned, do not attempt to right or move it. CONTACT THE NEAREST AFROX BRANCH.

Protective Clothing

Self contained breathing apparatus. Safety gloves and shoes, or boots, should be worn when handling containers.

Environmental precautions.

Vapourised liquefied petroleum gas is heavier than air and could form pockets of oxygen-deficient atmosphere in low lying areas.

6 ACCIDENTAL RELEASE MEASURES

Personal Precautions

Do not enter any area where liquefied petroleum gas has been spilled unless tests have shown that it is safe to do so.

Environmental Precautions.

The danger of widespread formation of explosive LPG/Air mixtures should be taken into account. Accidental ignition could result in massive explosion.

Small spills

DO NOT extinguish the fire unless the leakage can be stopped immediately. Once the fire has been extinguished and all spills have been stopped, ventilate the area.

Large spills

Stop the source if it can be done without risk. Contain the leaking liquid, with sand or earth, or disperse with special water/fog spray nozzle. Allow to evaporate. Restrict access to the area until completion of the clean-up procedure. Ventilate the area using forced-draught if necessary. All electrical equipment must be flameproof.

7 HANDLING AND STORAGE

Cylinders containing liquefied petroleum gas should only be handled and stored in the vertical position. Cylinders should never been rolled. Do not allow cylinders to slide or come into contact with sharp edges and they should be handled carefully. Ensure that cylinders are stored away from oxidants. Comply with local legislation..

8 EXPOSURE CONTROLS/PERSONAL PROTECTION

Occupational Exposure Hazards.

As vaporised LPG is a simple asphyxiant, avoid any areas where spillage has taken place.

Engineering control measures.

Engineering control measures are preferred to reduce exposure to Oxygen-depleted atmospheres. General methods include forced-draught ventilation, separate from other exhaust ventilation, separate from other exhaust ventilation systems. Ensure that all electrical equipment is flameproof.

Personal Protection.

Self-contained breathing apparatus should always be worn when entering area where oxygen depletion may have occurred. Safety goggles, gloves and shoes, or boots, should be worn when handling containers.
Skin. Wear loose-fitting overalls, preferably without pockets.
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9 PHYSICAL AND CHEMICAL PROPERTIES

Physical Data

Specific Volume @ 20°C & 101,325 kPa	471ml/g
Auto ignition temperature	450°C
Relative density (Air=1) @101,325kPa	+-1,75
Flammability in air	2,2-9.5%
Colour – Liquid	Clear
Taste	None
Odour	EthylMercaptan
Specification	SANS 1174

10 STABILITY AND REACTIVITY

Conditions to avoid

The dilution of the oxygen concentration in the atmosphere to levels which cannot support life. The formation of explosive gas/air mixtures.

Incompatible Materials

Any common, commercially available metal may be used with commercial (or higher) grades of liquefied petroleum gases because they are non-corrosive, though installations must be designed to withstand the pressure involved and must comply with all state local regulations**.**

Hazardous Decomposition Products.

The constituents of liquefied petroleum gas are relatively stable. However, on combustion, toxic compositions, typically carbon monoxide, may be formed, depending on conditions.

11 TOXICOLOGICAL INFORMATION

Acute Toxicity	TLV 1000 VPM
Skin & eye contact	No known effect.
Carcinogenicity	Severe cold burns can result in carcinoma

(For Further information see Section3.Adverse Health Effects)

12 ECOLOGICAL INFORMATION

Vapourised liquefied petroleum gas is heavier than air, and can cause pockets of oxygen-depleted atmosphere in low-lying areas. It does not pose a hazard to the ecology, unless the gas/air is ignited.

13 DISPOSAL CONSIDERATIONS

Disposal Methods Disposal of Propane, as with other flammable gases, should be undertaken only by personnel familiar with the gas and the procedures for disposal. Contact the supplier for instructions. In general, should it become necessary to dispose of Propane, the best procedure, as for other flammable gases, is to burn them in suitable burning unit available in the plant. This should be done in accordance with appropriate regulations.

Disposal of packaging The disposal of cylinders must only be handled by the gas supplier.

14 TRANSPORT INFORMATION

ROAD TRANSPORTATION

Road Transportation		
UN No.	1075	
ERG No.	115	
Hazchem warning	2A-Flammable gas	
SEA TRANSPORTATION		
IMDG	1075	
Label	Flammable gas	
AIR TRANSPORTATION		
ICAO/IATA Code	1075	
Class	2.1	
Packaging group		
Packaging instructions	Cargo	200
	Passenger	Forbidden
Maximum Quantity allowed	Cargo	150kg
	Passenger	Forbidden

15 REGULATORY INFORMATION

SUPPLEMENT TO SANS 10234:2008
Edition 1
Annex A Index No. 608-011-00-8

Hazard & Precautionary statement codes

H220	Extremely Flammable Gas
P210	Keep away from heat/sparks/open flames/ hot surfaces – NO SMOKING (Manufacture, supplier or the competent authority to specify ignition sources)
P377	Leaking gas fire: Do not extinguish unless leak can be stopped safely
P381	Eliminate all ignition sources if safe to do so
P403	Store in a well-ventilated place

16 OTHER INFORMATION

Bibliography
Handbook of Compressed Gases - 3rd Edition
Matheson. Matheson Gas Data Book - 6th Edition
Supplement to SANS 10234 – List of classification and labelling of chemicals in accordance with Globally Harmonized System (GHS)

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